Quarterly Report
Public Page

Date of Report: *September 30, 2014*

Contract Number: *DTPH56-14-H-00003*

Prepared for: *Government Agency: DOT*

Project Title: *Strain-based design and assessment in critical areas of pipeline systems with realistic anomalies*

Prepared by: *Center for Reliable Energy Systems (CRES), C-FER, NIST, and CANMET*

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For quarterly period ending: *September 30, 2014*

1 Work Completed in this Quarter

A request for a contract modification was submitted to PHMSA. The following key elements were included in the contract modification:

1. Use of thick-wall pipe pups in place of fittings to capture the behavior of the girth welds between two different pipe wall thicknesses,
2. Addition of baseline large-scale reference tests,
3. Update of the small-scale test scope to reflect the most up-to-date material/weld selection and expanded large-scale test matrix,
4. Expanded pre-test analyses, post-test data analyses, and model evaluations, and
5. Extension of the project completion time for two quarters.

Specimen dimensions, loading sequences, and instrumentation plans for the full-scale pipe tests were developed. The small-scale material test matrix was developed based on the need of the large-scale tests. Material procurement process is progressing.

Finite element analyses (FEA) were continued to (1) support the specimen design and (2) identify the controlling parameters. The FEA results suggested that the specimen length for some tests need to be increased. In addition, the effect of the pipe-to-pipe strength variation on the tensile strain design was studied with FEA.

Monthly reports were submitted online. Two online progress review meetings were held on 7/31/2014 and 9/9/2014, respectively.

2 Work Planned for the next Quarter

The work planned in the next quarter includes: (1) pipe procurement and weld fabrication, (2) small-scale material tests, (3) finite element analyses and sensitivity studies, (4) preparation of curved-wide plate tests, and (5) project management, monthly and quarterly reports, and meetings.